

# ***Headquarters U.S. Air Force***

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*Integrity - Service - Excellence*

## ***Air Force Sustainable Development***



***HQ AFCEE/DC***

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# *Overview of USAF SD Program*

- *Air Force Sustainable Development Policy*
- *Tools*
  - Application Guide for Lodging
  - Sustainable Development Guide
  - Training
  - PACES Parametric Cost Estimating
- *Examples of Air Force Sustainable Projects*

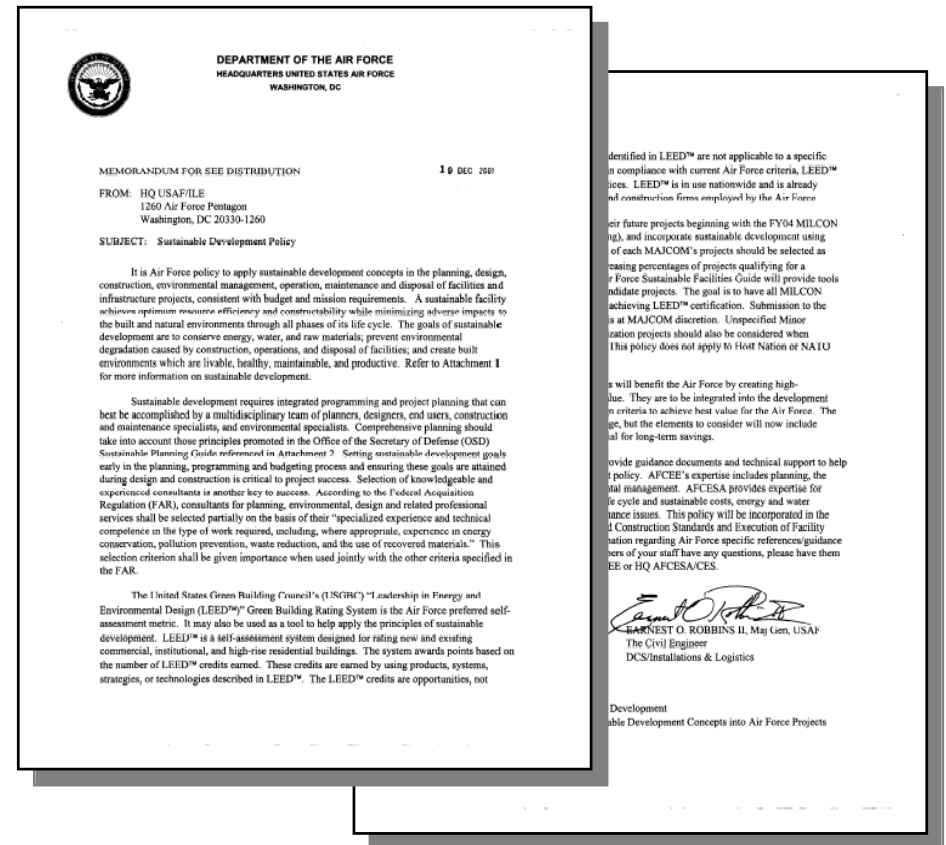


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# *Sustainable Development Policy*

## ■ *ILE policy letter signed 19 Dec 01*

- “It is Air Force policy to apply sustainable concepts in the planning, design, construction, environmental management, operation, maintenance and disposal of facilities and infrastructure projects, consistent with budget and mission constraints.”
- The US Green Building Council’s Leadership in Energy and Environmental Design (LEED™) Green Building Rating System is identified as the AF-preferred self-assessment metric.
- Goal: All MILCON projects in the FY09 program capable of achieving LEED certification, starting with 20% of each MAJCOM’s FY04 projects



- *Application for actual LEED™ certification is at MAJCOM discretion*



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# *LEED Application Guide for Lodging*

- Application Guides assist in applying LEED requirements to specific building types
- Developed in conjunction with the US Green Building Council
- Intended for Dormitories
- Can apply to Visiting Quarters and possibly Temporary Living Facilities
- Commercial applications include college dormitories, hotels and motels



## **Application Guide for Lodging**

Using the  
LEED Green Building Rating System™



Prepared for:  
U S Air Force Center for  
Environmental Excellence



In cooperation with the  
U S Green Building Council



Prepared by  
Paladino and Company, Inc.



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# LEED Application Guide for Lodging

- Intent and Requirements from the LEED Green Building Rating System
- Special considerations for application to lodging facilities
- Special considerations for application to Air Force lodging facilities

LEED Application Guide for Lodging  
Air Force Center for Environmental Excellence

SS WE EA MR EQ ID  
Prerequisite 1  
Lodging

**Prerequisite 1 Erosion and Sedimentation Control**

**Intent:** Control erosion to reduce negative impacts on water and air quality.

**Requirements:** Design to a site sediment and erosion control plan that conforms to the best management practices in the EPA's Stormwater Management for Construction Activities, EPA Document No. EPA-832-R-92-005, Chapter 3, OR local Erosion and Sedimentation Control standards and codes, whichever is more stringent. The plan shall meet the following objectives:

- Prevent loss of soil during construction by stormwater runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.
- Prevent sedimentation of storm sewer or receiving streams and/or air pollution with dust and particulate matter.

**As applied to LEED Lodging:** LEED Lodging facilities require the same erosion and sedimentation control as LEED commercial buildings. Prospective building sites should be analyzed for erosion potential and subsequent impacts on regional water bodies. Those sites that are prone to erosion processes should be avoided. Erosion control measures affect landscape design, building orientation, parking programs, grading activities, and storm drainage.

Follow the EPA Reference Standard and develop an Erosion Control Plan for the project to reduce negative impacts on water and air. If another standard dictates erosion control measures, compare this standard to the EPA Reference Standard and apply the standard that is most stringent.

**As applied to U.S. Air Force:** USAF projects are required to follow an erosion and sedimentation control standard as described in the USAF Landscape Design Guide, Chapter 18: Erosion Control, Section 18.3 Erosion Control Planning Process describes a method for creating an Erosion Control Plan.

The EPA Standard requires the completion of 6 Steps: 1) Site evaluation, 2) assessment, 3) control selection, 4) certification, 5) construction, and 6) stabilization and termination. The USAF standard requires equivalent steps: an existing conditions survey (satisfies Step 1), an erosion potential analysis (satisfies Step 2), a detailed plan describing measures, the construction sequence and a management approach (satisfies Step 3, 4, 5 and 6). The technical format of the plan as required by the USAF more stringent than those of the EPA approach. Thus, following the USAF standard will meet the requirement for LEED.

Currently there are no sample plans available from the USAF, so consider using sample checklists from the EPA's web site. Include language in construction documents that require erosion and sedimentation control measures for the project. Also, monitor the project site during construction to ensure that the erosion and sedimentation requirements are being followed.

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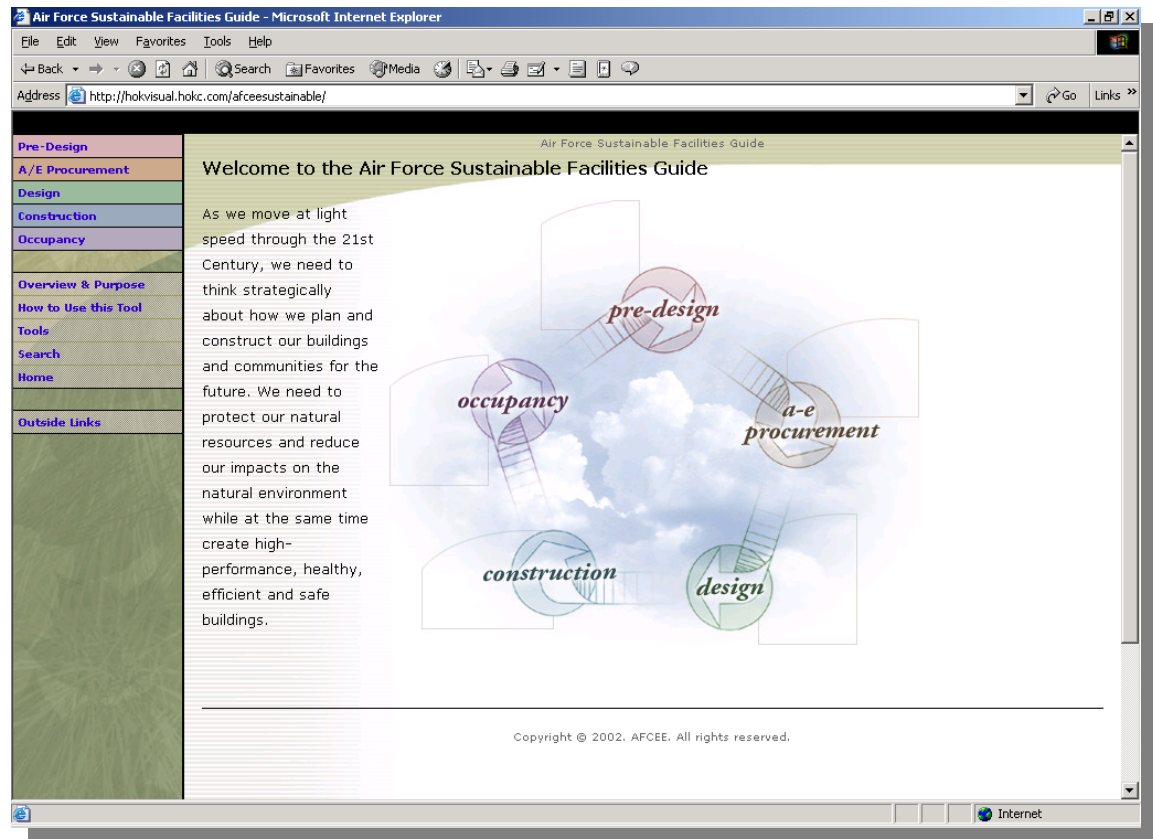
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# *New USAF Sustainable Facilities Guide*

- Replaces existing “USAF Environmentally Responsible Facilities Guide” on AFCEE web site
- Process-focused tools & resources
- Whole Building Design Guide (WBDG) provides technical resources to complement the process guidance in the USAF Guide



- LEED™ Rating System used as organizational framework
- <http://www.afcee.brooks.af.mil/dc/dcd/arch/rfg/index.html>





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# *Sustainable Development Training*

- 2 1/2 day course
- MILCON project managers and facility delivery team members
- Review of AF policy & design agent initiatives
- Introduction to LEEDTM Rating System by USGBC staff
- Overview of key SD strategies
- Discussion of implementation issues presented by Georgia Tech staff
- Discussion on teaming & integrated design process
- Demonstration of USAF Sustainable Facilities Guide
- Two sessions completed; Final session date & location are being determined
- Future instruction at AFIT

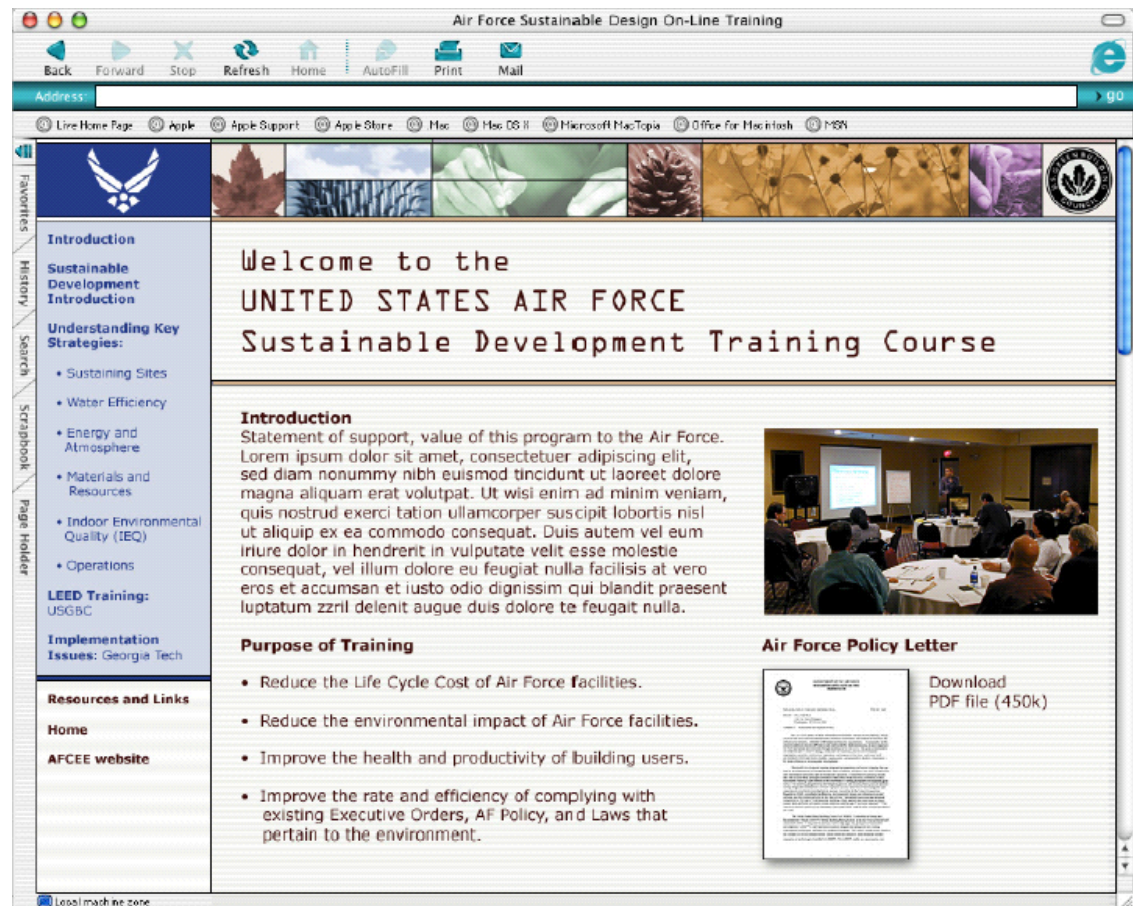




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# *Sustainable Development Training*

- 2 1/2 day classroom material converted to an online course
- Development underway
- Currently 15%
- Completion scheduled for July/August 2003







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# *PACES*

- ***PArametric Cost Engineering System (PACES):***
- ***Life Cycle Cost Model that identifies O&M costs for buildings currently available***
- ***Comprehensive energy use model that identifies the effects of different design options on energy use is under development***
- ***Milestones:***
  - FY03 – Fully integrate the energy model into PACES and add the capability to model different HVAC systems.
  - FY04 and future – Add additional sustainable features into PACES such as lighting systems, recycling and salvaging, VOC's, etc, as funds are available.



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## *Air Force LEED Projects*

### **Diverse Owners & Building Type**

**NOW Certified as a Version 1.0 Bronze**



**Barksdale Air Force Physical Fitness Center**

US Air Force, Shreveport, LA

48,000 gsf Government

# 0236

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## *Air Force LEED Projects*

### **Diverse Owners & Building Type** **Examples of 2.0 Registered Projects**



**Fire Station at Homestead Air Reserve**

US Air Force, Houston, TX

26,000 gsf Government

# 0292



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## *Homestead ARB Fire Station Goals*

### ***Lower utility costs***

High efficiency HVAC, low-e glass,  
photoelectric site lighting, shade  
with native plants

### ***Water efficiency***

Use recirculating vehicle wash water  
and return rain water to the earth  
through percolation

### ***Materials efficiency***

Recycle C&D debris  
and use cost-effective  
recycled materials

### ***Attain a LEED rating (Gold is the target)***

